EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Takashi Saito on February 24 and 25, 2009.

The application has been amended by cancelling claim 15 and amending claims 1 and 12 as follows:

1. (Currently Amended) A method of making a diamond product having a projection or a depression on a surface thereof by etching, said method comprising the steps of:

forming a diamond substrate with a mask layer including a metal layer in at least one part thereof; [[and]]

etching said diamond substrate formed with said mask layer with a plasma of a mixed gas composed of a gas containing an oxygen atom and a gas containing a fluorine atom; and

monitoring intensity ratio A/B of the mixed gas, where A is an intensity of an emission peak caused by atomic oxygen and B is an intensity of an emission peak caused by molecular oxygen,

wherein said fluorine atom has a concentration within the range of 0.04% to 6% with respect to the total number of atoms in said mixed gas, said plasma is produced by generating a high-frequency discharge between two plate electrodes, said high-frequency discharge is generated by supplying an electric power of not less than 0.28 W/cm^2 between said plate electrodes, and said mixed gas further contains nitrogen gas,

thereby to form the diamond product having the projection or depression with a side face with an angle of inclination of at least 78 degrees,

wherein said mixed gas contains nitrogen gas in an amount such that the intensity ratio A/B of said mixture is greater than the intensity ratio A/B of the mixed gas with no nitrogen~~; where A is the intensity of an emission peak caused by atomic oxygen and B is the intensity of an emission peak caused by molecular oxygen~~.

12. (Currently Amended) A method of making a diamond product by etching a diamond substrate, said method comprising the steps of:

etching said diamond substrate using a plasma of a mixed gas, wherein the plasma of the mixed gas comprises oxygen atoms, fluorine atoms, and nitrogen atoms;

generating a high-frequency discharge between two plate electrodes by supplying an electric power of not less than 0.28 W/cm^2 between said plate electrodes;

monitoring intensity ratio A/B of the mixed gas, where A is an intensity of an emission peak caused by atomic oxygen and B is an intensity of an emission peak caused by molecular oxygen, and

wherein the mixed gas has a fluorine atom concentration within the range of 0.04% to 6% with respect to the total number of atoms in said mixed gas, and wherein said mixed gas contains nitrogen gas in an amount such that the intensity ratio A/B of said mixture is greater than the intensity ratio A/B of the mixed gas with no nitrogen~~, where A is the intensity of an emission peak caused by atomic oxygen and B is the intensity of an emission peak caused by molecular oxygen~~.

15. Cancel

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M, W and F: 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allan Olsen/
Primary Examiner, Art Unit 1792